SEQUENCE LISTING

<110> Lee, Arthur M.E.
Jain, Mukesh
Watanabe, Masafumi

<120> IN VITRO DIFFERENTIATION OF VASCULAR SMOOTH MUSCLE CELLS AND REAGENTS RELATED THERETO

<130> APV-382.01

<140> 09/181,311
<141> 1998-10-28

<150> 60/063,363
<151> 1997-10-28

<150> 60/080,420
<151> 1998-04-02

<150> 60/096,685
<151> 1998-08-14

<160> 23

<170> PatentIn Ver. 2.0

<210> 1
<211> 153
<212> DNA
<213> Murine

<220>
<223> Clone WO11

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gccgatgaga accaggagta cagccccatg actgggcagt gtcgctctcg ggtcacggaa 120
gattcaggtg tggatcgtca gcctaggcga aga 153

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<211> 143
<212> DNA
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gccgatgaga accaggagta cagccccatg actgggcagt gtcgctcccg ggctactgaa 120
gattcaggtg tggatcgtca gcc 143

<210> 3
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<212> PRT
<213> Homo sapiens

<220>
<223> ACLP

<400> 3

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Leu Ala Leu Cys Pro Gly Gly Arg Pro Gln Thr Val Leu Thr Asp Asp
            20                  25                  30

Glu Ile Glu Glu Phe Leu Glu Gly Phe Leu Ser Glu Leu Glu Pro Glu
        35                  40                  45

Pro Arg Glu Asp Asp Val Glu Ala Pro Pro Pro Pro Glu Pro Thr Pro
    50                  55                  60

Arg Val Arg Lys Ala Gln Ala Gly Gly Lys Pro Gly Pro Gly Thr Ala
65                  70                  75                  80

Ala Glu Val Pro Pro Glu Lys Thr Lys Asp Lys Gly Lys Lys Gly Lys
                85                  90                  95

Lys Asp Lys Gly Pro Lys Val Pro Lys Glu Ser Leu Glu Gly Ser Pro
            100                 105                 110

Arg Pro Pro Lys Lys Gly Lys Glu Lys Pro Pro Lys Ala Thr Lys Lys
        115                 120                 125

Pro Lys Glu Lys Pro Pro Lys Ala Thr Lys Lys Pro Lys Glu Glu Pro
    130                 135                 140

Pro Lys Ala Thr Lys Lys Pro Lys Glu Lys Lys Ala Thr Lys Lys Pro
145                 150                 155                 160

Pro Ser Gly Lys Arg Pro Pro Ile Leu Ala Pro Ser Glu Thr Leu Glu
                165                 170                 175

Trp Pro Leu Pro Pro Pro Pro Ser Pro Gly Pro Glu Glu Leu Pro Gln
            180                 185                 190

Glu Gly Gly Ala Pro Leu Ser Asn Asn Trp Gln Asn Pro Gly Glu Glu
        195                 200                 205

Thr His Val Glu Ala Gln Glu His Gln Pro Glu Pro Glu Glu Glu Thr
    210                 215                 220

Glu Gln Pro Thr Leu Asp Tyr Asn Ile Glu Arg Glu Asp Tyr Glu Asp
225                 230                 235                 240

Phe Glu Tyr Ile Arg Arg Gln Lys Gln Pro Arg Pro Pro Pro Ser Arg
                245                 250                 255

Arg Arg Arg Pro Glu Arg Val Trp Pro Glu Pro Pro Glu Glu Lys Ala
            260                 265                 270

Pro Ala Pro Ala Pro Glu Glu Arg Ile Glu Pro Pro Val Lys Pro Leu
        275                 280                 285
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Leu Pro Pro Leu Pro Pro Asp Tyr Gly Asp Gly Tyr Val Ile Pro Asn
    290                 295                 300

Tyr Asp Asp Met Asp Tyr Gly Pro Pro Pro Pro Gln Lys Pro Asp Ala
305                 310                 315                 320

Glu Arg Gln Thr Asp Glu Glu Lys Glu Glu Leu Lys Lys Pro Lys Lys
                325                 330                 335

Glu Asp Ser Ser Pro Lys Glu Glu Thr Asp Lys Trp Ala Val Glu Lys
            340                 345                 350

Gly Lys Asp His Lys Glu Pro Arg Lys Gly Glu Glu Leu Glu Glu Glu
        355                 360                 365

Trp Thr Pro Thr Glu Lys Val Lys Cys Pro Pro Ile Gly Met Glu Ser
    370                 375                 380

His Arg Ile Asn Gln Ile Arg Ala Ser Ser Met Leu Arg His Gly Leu
385                 390                 395                 400

Gly Ala Gln Arg Gly Arg Leu Asn Met Gln Thr Gly Ala Thr Glu Asp
                405                 410                 415

Asp Tyr Tyr Asp Gly Ala Trp Cys Ala Glu Asp Asp Ala Arg Thr Gln
            420                 425                 430

Trp Ile Glu Val Asp Thr Arg Arg Thr Thr Arg Phe Thr Gly Val Ile
        435                 440                 445

Thr Gln Gly Arg Asp Ser Ser Ile His Asp Asp Phe Val Thr Thr Phe
    450                 455                 460

Phe Phe Ser Asn Asp Ser Gln Thr Trp Val Met Tyr Thr Asn Gly Tyr
465                 470                 475                 480

Glu Glu Met Thr Phe His Gly Asn Val Asp Lys Asp Thr Pro Val Leu
                485                 490                 495

Ser Glu Leu Pro Glu Pro Val Val Ala Arg Phe Ile Arg Ile Tyr Pro
            500                 505                 510

Leu Thr Trp Asn Gly Ser Leu Cys Met Arg Leu Glu Val Leu Gly Cys
        515                 520                 525

Ser Val Ala Pro Val Tyr Ser Tyr Tyr Ala Gln Asn Glu Val Val Asp
    530                 535                 540

Asp Leu Asp Phe Arg His His Ser Tyr Lys Asp Met Arg Gln Leu Met
545                 550                 555                 560

Lys Val Val Asn Glu Glu Cys Pro Thr Ile Thr Arg Thr Tyr Ser Leu
                565                 570                 575

Gly Lys Ser Ser Arg Gly Leu Lys Ile Tyr Ala Met Glu Ile Ser Asp
            580                 585                 590
```

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Asn Pro Gly Glu His Glu Leu Gly Glu Pro Glu Phe Arg Tyr Thr Ala
        595                 600                 605

Gly Ile His Gly Asn Glu Val Leu Gly Arg Glu Leu Ile Leu Met Gln
    610                 615                 620

Tyr Leu Cys Arg Glu Tyr Arg Asp Gly Asn Pro Arg Val Arg Ser Leu
625                 630                 635                 640

Val Gln Asp Thr Arg Ile His Leu Val Pro Ser Leu Asn Pro Asp Gly
                645                 650                 655

Tyr Glu Val Ala Ala Gln Met Gly Ser Glu Phe Gly Asn Trp Ala Leu
            660                 665                 670

Gly Leu Trp Thr Glu Glu Gly Phe Asp Ile Phe Glu Asp Phe Pro Asp
        675                 680                 685

Leu Asn Ser Val Leu Trp Gly Ala Glu Glu Phe Val Pro Tyr Arg Val
    690                 695                 700

Pro Asn Asn Asn Leu Pro Ile Pro Glu Arg Tyr Leu Ser Pro Asp Ala
705                 710                 715                 720

Thr Val Ser Thr Glu Val Arg Ala Ile Ile Ala Trp Met Glu Lys Asn
                725                 730                 735

Pro Phe Val Leu Gly Ala Asn Leu Asn Gly Gly Glu Arg Leu Val Ser
            740                 745                 750

Tyr Pro Tyr Asp Met Ala Arg Thr Pro Thr Gln Glu Gln Leu Leu Ala
        755                 760                 765

Ala Ala Met Ala Ala Ala Glu Gly Glu Asp Glu Val Ser Glu Ala Gln
    770                 775                 780

Glu Thr Pro Asp His Ala Ile Phe Arg Trp Leu Ala Ile Ser Phe Ala
785                 790                 795                 800

Ser Ala His Leu Thr Leu Thr Glu Pro Tyr Arg Gly Gly Cys Gln Ala
                805                 810                 815

Gln Asp Tyr Thr Gly Gly Met Gly Ile Val Asn Gly Ala Lys Trp Asn
            820                 825                 830

Pro Arg Thr Gly Thr Ile Asn Asp Phe Ser Tyr Leu His Thr Asn Cys
        835                 840                 845

Leu Glu Leu Ser Phe Tyr Ile Asp Lys Phe Pro His Glu Ser Glu Leu
    850                 855                 860

Pro Arg Glu Trp Glu Asn Asn Lys Glu Ala Leu Leu Thr Phe Met Glu
865                 870                 875                 880

Gln Val His Arg Gly Ile Lys Gly Val Val Thr Asp Glu Gln Gly Ile
                885                 890                 895
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Pro Ile Ala Asn Ala Thr Ile Ser Val Ser Gly Ile Asn His Gly Val
            900                 905                 910

Lys Thr Ala Ser Gly Gly Asp Tyr Trp Arg Ile Leu Asn Pro Gly Glu
        915                 920                 925

Tyr Arg Val Thr Ala Glu Gly Tyr Thr Pro Ser Ala Lys Thr Cys Asn
    930                 935                 940

Val Asp Tyr Asp Ile Gly Ala Thr Gln Cys Asn Phe Ile Leu Ala Arg
945                 950                 955                 960

Ser Asn Trp Lys Arg Ile Arg Glu Ile Met Ala Met Asn Gly Asn Arg
                965                 970                 975

Pro Ile Pro His Ile Asp Pro Ser Arg Pro Met Thr Pro Gln Gln Arg
            980                 985                 990

Arg Leu Gln Gln Arg Arg Leu Gln His Arg Leu Arg Leu Arg Ala Gln
        995                1000                1005

Met Arg Leu Asn Ala Thr Thr Thr Leu Gly Pro His Thr Val Pro Pro
   1010                1015                1020

Thr Leu Pro Pro Ala Pro Ala Thr Thr Leu Ser Thr Thr Ile Glu Pro
1025                1030                1035                1040

Trp Gly Leu Ile Pro Pro Thr Thr Ala Gly Trp Glu Glu Ser Glu Thr
                1045                1050                1055

Glu Thr Tyr Thr Glu Val Val Thr Glu Phe Gly Thr Glu Val Glu Pro
            1060                1065                1070

Glu Phe Gly Thr Lys Val Glu Pro Glu Phe Glu Thr Gln Leu Phe Glu
        1075                1080                1085

Thr Gln Leu Glu Pro Glu Phe Glu Glu Glu Glu Glu Glu Glu Lys Glu
   1090                1095                1100

Glu Glu Ile Ala Thr Gly Gln Ala Phe Pro Phe Thr Thr Val Glu Thr
1105                1110                1115                1120

Tyr Thr Val Asn Phe Gly Asp Phe
                1125
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<213> Murine

<220>
<223> ACLP

<400> 4

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Met Ala Pro Val Arg Thr Ala Ser Leu Leu Cys Gly Leu Leu Ala Leu
  1               5                  10                  15
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Leu Thr Leu Cys Pro Glu Gly Asn Pro Gln Thr Val Leu Thr Asp Asp
            20                  25                  30

Glu Ile Glu Glu Phe Leu Glu Gly Phe Leu Ser Glu Leu Glu Thr Gln
        35                  40                  45

Ser Pro Pro Arg Glu Asp Asp Val Glu Val Gln Pro Leu Pro Glu Pro
    50                  55                  60

Thr Gln Arg Pro Arg Lys Ser Lys Ala Gly Gly Lys Gln Arg Ala Asp
65                  70                  75                  80

Val Glu Val Pro Pro Glu Lys Asn Lys Asp Lys Glu Lys Lys Gly Lys
                85                  90                  95

Lys Asp Lys Gly Pro Lys Ala Thr Lys Pro Leu Glu Gly Ser Thr Arg
            100                 105                 110

Pro Thr Lys Lys Pro Lys Glu Lys Pro Pro Lys Ala Thr Lys Lys Pro
        115                 120                 125

Lys Glu Lys Pro Pro Lys Ala Thr Lys Lys Pro Lys Glu Lys Pro Pro
    130                 135                 140

Lys Ala Thr Lys Lys Pro Lys Glu Lys Lys Ala Thr Lys Arg Pro Ser
145                 150                 155                 160

Ala Gly Lys Lys Phe Ser Thr Val Ala Pro Leu Glu Thr Leu Asp Arg
                165                 170                 175

Leu Leu Pro Ser Pro Ser Asn Pro Ser Ala Gln Glu Leu Pro Gln Lys
            180                 185                 190

Arg Asp Thr Pro Phe Pro Asn Ala Trp Gln Gly Gln Gly Glu Glu Thr
        195                 200                 205

Gln Val Glu Ala Lys Gln Pro Arg Pro Glu Pro Glu Glu Glu Thr Glu
    210                 215                 220

Met Pro Thr Leu Asp Tyr Asn Ile Glu Lys Glu Asp Tyr Glu Asp Phe
225                 230                 235                 240

Glu Tyr Ile Arg Arg Gln Lys Gln Pro Arg Pro Thr Pro Ser Arg Arg
                245                 250                 255

Arg Leu Trp Pro Glu Arg Pro Glu Glu Lys Thr Glu Glu Pro Glu Glu
            260                 265                 270

Arg Lys Glu Val Glu Pro Pro Leu Lys Pro Leu Leu Pro Pro Asp Tyr
        275                 280                 285

Gly Asp Ser Tyr Val Ile Pro Asn Tyr Asp Asp Leu Asp Tyr Pro His
    290                 295                 300

Pro Pro Pro Gln Lys Pro Asp Val Gly Gln Glu Val Asp Glu Glu Lys
305                 310                 315                 320
```

```
Glu Glu Met Lys Lys Pro Lys Lys Glu Gly Ser Ser Pro Lys Glu Asp
                325                 330                 335

Thr Glu Asp Lys Trp Thr Val Glu Lys Asn Lys Asp His Lys Gly Pro
            340                 345                 350

Arg Lys Gly Glu Glu Leu Glu Glu Glu Trp Ala Pro Val Glu Lys Ile
        355                 360                 365

Lys Cys Pro Pro Ile Gly Met Glu Ser His Arg Ile Asn Gln Ile Arg
    370                 375                 380

Ala Ser Ser Met Leu Arg His Gly Leu Gly Ala Gln Arg Gly Arg Leu
385                 390                 395                 400

Asn Met Gln Ala Gly Ala Asn Glu Asp Asp Tyr Tyr Asp Gly Ala Trp
                405                 410                 415

Cys Ala Glu Asp Glu Ser Gln Thr Gln Trp Ile Glu Val Asp Thr Arg
            420                 425                 430

Arg Thr Thr Arg Phe Thr Gly Val Ile Thr Gln Gly Arg Asp Ser Ser
        435                 440                 445

Ile His Asp Asp Phe Val Thr Thr Phe Phe Phe Ser Asn Asp Ser Gln
    450                 455                 460

Thr Trp Val Met Tyr Thr Asn Gly Tyr Glu Glu Met Thr Phe Tyr Gly
465                 470                 475                 480

Asn Val Asp Lys Asp Thr Pro Val Leu Ser Glu Leu Pro Glu Pro Val
                485                 490                 495

Val Ala Arg Phe Ile Arg Ile Tyr Pro Leu Thr Trp Asn Gly Ser Leu
            500                 505                 510

Cys Met Arg Leu Glu Val Leu Gly Cys Pro Val Thr Pro Val Tyr Ser
        515                 520                 525

Tyr Tyr Ala Gln Asn Glu Val Val Asp Ser Leu Asp Phe Arg His His
    530                 535                 540

Ser Tyr Lys Asp Met Arg Gln Leu Met Lys Ala Val Asn Glu Glu Cys
545                 550                 555                 560

Pro Thr Ile Thr Arg Thr Tyr Ser Leu Gly Lys Ser Ser Arg Gly Leu
                565                 570                 575

Lys Ile Tyr Ala Met Glu Ile Ser Asp Asn Pro Gly Asp His Glu Leu
            580                 585                 590

Gly Glu Pro Glu Phe Arg Tyr Thr Ala Gly Ile His Gly Asn Glu Val
        595                 600                 605

Leu Gly Arg Glu Leu Ile Leu Met Gln Tyr Leu Cys Gln Glu Tyr Arg
    610                 615                 620
```

```
Asp Gly Asn Pro Arg Val Arg Asn Leu Val Gln Asp Thr Arg Ile His
625                 630                 635                 640

Leu Val Pro Ser Leu Asn Pro Asp Gly Tyr Glu Val Ala Ala Gln Met
                645                 650                 655

Gly Ser Glu Phe Gly Asn Trp Ala Leu Gly Leu Trp Thr Glu Glu Gly
            660                 665                 670

Phe Asp Ile Phe Glu Asp Phe Pro Asp Leu Asn Ser Val Leu Trp Ala
        675                 680                 685

Ala Glu Glu Phe Val Pro Tyr Arg Val Pro Asn Asn Asn Leu Pro Ile
    690                 695                 700

Pro Glu Arg Tyr Leu Ser Pro Asp Ala Thr Val Ser Thr Glu Val Arg
705                 710                 715                 720

Ala Ile Ile Ser Trp Met Glu Lys Asn Pro Phe Val Leu Gly Ala Asn
                725                 730                 735

Leu Asn Gly Gly Glu Arg Leu Val Ser Tyr Pro Tyr Asp Met Ala Arg
            740                 745                 750

Thr Pro Ser Gln Glu Gln Leu Leu Ala Glu Ala Leu Ala Ala Ala Glu
        755                 760                 765

Gly Glu Asp Gly Val Ser Glu Ala Gln Glu Thr Pro Asp His Ala Ile
    770                 775                 780

Phe Arg Trp Leu Ala Ile Ser Phe Ala Ser Ala His Leu Thr Met Thr
785                 790                 795                 800

Glu Pro Tyr Arg Gly Gly Cys Gln Ala Gln Asp Tyr Thr Ser Gly Met
                805                 810                 815

Gly Ile Val Asn Gly Ala Lys Trp Asn Pro Arg Ser Gly Thr Phe Asn
            820                 825                 830

Asp Phe Ser Tyr Leu His Thr Asn Cys Leu Glu Leu Ser Val Tyr Ile
        835                 840                 845

Asp Lys Phe Pro His Glu Ser Glu Leu Pro Arg Glu Trp Glu Asn Asn
    850                 855                 860

Lys Glu Ala Leu Leu Thr Phe Met Glu Gln Val His Arg Gly Ile Lys
865                 870                 875                 880

Gly Val Val Thr Asp Glu Gln Gly Ile Pro Ile Ala Asn Ala Thr Ile
                885                 890                 895

Ser Val Ser Gly Ile Asn His Gly Val Lys Thr Ala Ser Gly Gly Asp
            900                 905                 910

Tyr Trp Arg Ile Leu Asn Pro Gly Glu Tyr Arg Val Thr Ala Glu Gly
        915                 920                 925
```

```
Tyr Thr Ser Ser Ala Lys Ile Cys Asn Val Asp Tyr Asp Ile Gly Ala
    930                 935                 940

Thr Gln Cys Asn Phe Ile Leu Ala Arg Ser Asn Trp Lys Arg Ile Arg
945                 950                 955                 960

Glu Ile Leu Ala Met Asn Gly Asn Arg Pro Ile Leu Gly Val Asp Pro
                965                 970                 975

Ser Arg Pro Met Thr Pro Gln Gln Arg Arg Met Gln Gln Arg Arg Leu
            980                 985                 990

Gln Tyr Arg Leu Arg Met Arg Glu Gln Met Arg Leu Asn Ser Thr Ala
        995                1000                1005

Gly Pro Ala Thr Ser Pro Thr Pro Ala Leu Met Pro Pro Pro Ser Pro
   1010                1015                1020

Thr Pro Ala Ile Thr Leu Arg Pro Trp Glu Val Leu Pro Thr Thr Thr
1025                1030                1035                1040

Ala Gly Trp Glu Glu Ser Glu Thr Glu Thr Tyr Thr Glu Val Val Thr
               1045                1050                1055

Glu Phe Glu Thr Val Phe Thr Asp Leu Glu Val Glu Glu Leu Glu Glu
           1060                1065                1070

Glu Glu Glu Arg Glu Glu Glu Glu Met Asp Thr Gly Leu Thr Phe Pro
       1075                1080                1085

Leu Thr Thr Val Glu Thr Tyr Thr Val Asn Phe Gly Asp Phe
   1090                1095                1100
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<210> 5
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<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: CArG box

<400> 5
ccwwwwwwgg 10

<210> 6
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: CArG box (3X)

<400> 6
ccwwwwwwgg ccwwwwwwgg ccwwwwwwgg 30

<210> 7
<211> 10

<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: modified oligo

<400> 7
ccaaatatgg 10

<210> 8
<211> 10
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: modified oligo

<400> 8
ccacacatgg 10

<210> 9
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<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: primer

<400> 9
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<210> 10
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: primer

<400> 10
acaatttcac acaggatggt aaaccc 26

<210> 11
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: primer

<400> 11
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<210> 12
<211> 21
<212> DNA
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<223> Description of Artificial Sequence: primer

<400> 12
ttaccacgat gttcctcttg a 21

<210> 13
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: primer

<400> 13
aggaaacacc aaggtcaagc a 21

<210> 14
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: primer

<400> 14
gggactgtac cacaggttag 20

<210> 15
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: primer

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<210> 16
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: primer

<400> 16
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<210> 17
<211> 21
<212> DNA
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<220>
<223> Description of Artificial Sequence: primer

<400> 17
cagtggctgg aaagcaagag c 21

<210> 18
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<212> DNA
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<220>
<223> Description of Artificial Sequence: primer

<400> 18
gggctggggc agacgggc 18

<210> 19
<211> 45
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: CArG element

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<210> 20
<211> 17
<212> DNA
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<220>
<223> Description of Artificial Sequence: primer

<400> 20
atctggttgt cctcaat 17

<210> 21
<211> 17
<212> DNA
<213> Artificial Sequence

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<223> Description of Artificial Sequence: primer

<400> 21
tgactccatc ccaatag 17

<210> 22
<211> 26
<212> DNA
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<223> Description of Artificial Sequence: EcoRI site

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<210> 23
<211> 28
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<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: HindIII site

<400> 23
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